ANTHROPOMETRIC NOTES ON THE NATIVES OF SIWAH OASIS

BY

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PREFACE

Since the founder of the Harvard African Studies took special interest in the Eastern Libyans, I here submit a few anthropological notes and photographs of the people of Siwah Oasis, among whom I lived, in the winter of 1926–27, for more than three months. The means for my trip to Siwah and for my sojourn there were generously provided by Mrs. Oric Bates.

I went to Siwah especially to collect information on the culture of the living inhabitants, and when I left the Oasis I still thought that I had accomplished something in this line. After an interval of five years, however, and in the light of a more mature judgment, I find my ethnological material too vague and fragmentary for publication. Only the anthropometry and a few of the photographs have any value, and they are presented with a full admission of how little this is.

I feel much indebted to Dr. E. A. Hooton for his suggestions and assistance in the preparation of this paper, to the Egyptian officers in Siwah for their hospitality and aid, and to several Siwans — particularly Shaykh Abu Bekr Raja, Shaykh 'Amran Mansur, Shaykh 'Abd er Rahman Tomi, Yussuf Bekrein, and Senussi 'Ali 'Omar — who, though they little understood the purpose of my visit, seemed always willing to instruct me and to procure subjects for the calipers. Captain Hillier of Marsa Matruh holds a unique place among my friends in the Libyan Desert, and I never look back upon those days without gratitude to him.

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Cambridge, Massachusetts
January, 1932

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ANTHROPOMETRIC NOTES ON THE NATIVES OF SIWAH OASIS

INTRODUCTION

Geography and Climate. The Oasis now called Siwah, but known to the Romans as Ammonium and to the early Arab geographers as Santariah, lies about 170 miles south of the Mediterranean coast and 350 miles west of the Valley of the Nile. It is a flat depression in the desert, slightly below sea-level, and is watered by two salty lakes — a greater in the south and a lesser in the north — by their marshes, and by a multitude of pools. (Plate 9, figs. *a* and *b*). Some of these pools are too brackish for drinking, others are quite fresh. To the north and east rises the brown limestone escarpment of the Libyan Plateau, to the west the eye meets a horizon of sandy desert broken by low hills, and to the south begins the great range of sand-dunes that rolls away toward Kufrah.

The nearest inhabited oases are El Garah, 70 miles northeast of Siwah, and Jaghabub, 95 miles northwest. Caravan roads from Siwah lead directly to the coastal towns, to El Garah and Jaghabub, to Kufrah, and to Jalu and Aujilah, from which they pass to all points west and south. Those linking Siwah directly with Bahariah, Dakhlah, and the Nile Valley now carry very little traffic.

Though extremes of temperature are less severe in the Oasis than on the surrounding desert, natives and visitors often complain of the summer heat, and in winter of the cold. Rain falls seldom.

Vital Statistics. The Oasis supports a population of about 3800. This total includes the outpost of Siwan race and culture at El Garah. A census taken in February, 1927, returned 2069 males and 1727 females, a total of 3796. The records in the Egyptian Government Office at Siwah show the following birth and death statistics:

	Births		Deaths	
	Male	Female	Male	Female
1923	52	53	34	46
1927	94	79	80	85

From these figures we may derive the following rates:

	General Birth Rate per 1000 Population	General Death Rate per 1000 Population	Sex Rate in Siwah; Females = 100		
			Living Population	at Birth	at Death
1923	....	....	....	98.11	73.91
1927 (epidemic of influenza)	45.5	43.4	119.57	118.98	94.11

The above sex rate for the living population shows such a surplus of males as to seem untrustworthy, especially since transient Bedawin caravaneers may have been included in the census; but it is partially confirmed by the high male surplus at birth.

I do not understand the relation of the following data on children to the death statistics given above. The latter may be only for adults; if it represents the total population, the proportion of child deaths to adult deaths seems far too high. Since I took these figures from the records in the Government Office at Siwah, I give them here for what they are worth.

DEATH AGES OF CHILDREN

	Stillborn	Under 1 Year	1–10 Years	10–15 Years	
1923	8	18	14	41	
1924	7	19	14	38	
1925	3	26	19	36	
1926	12	19	29	60	
1927	10	46	54	51	(influenza epidemic)

In comparison we may cite the following figures from Khargah Oasis and Egyptian towns:[1]

BIRTHS AND DEATHS IN THE PRINCIPAL TOWNS OF EGYPT DURING THE YEARS 1901–1907

	Birth Rate per 1000	Death Rate per 1000	Natural Increase per 1000
1901	42.3	33.3	9.0
1902	42.7	36.7	6.0
1903	42.5	32.0	10.5
1904	44.1	38.2	5.9
1905	43.8	34.2	9.6
1906	44.7	33.9	10.8
1907	43.7	36.7	7.0
Averages	43.4	35.0	8.4

BIRTH RATE IN KHARGAH VILLAGE, KHARGAH OASIS

Year	Population at Beginning of Year	Males Born	Females Born	Total	Per 1000
1904	4,978	...	...	254	51.0
1905	5,094	121	113	234	45.9
1906	5,209	135	147	282	53.0
1908	5,471	103	114	217	39.7
Averages .... (1904–07, 5,151)	5,215	122	123	247	47.4

DEATH RATE IN KHARGAH VILLAGE, KHARGAH OASIS

Year	Males	Females	Total	Per 1000 Population
1904	...	...	138	27.7
1905	62	57	119	23.4
1906	73	62	135	25.9
1907	61	72	133	25.5
1908 (epidemic of measles)	192	160	352	64.3
Averages	97	88	175	33.7

SEX RATE IN KHARGAH OASIS; FEMALES = 100

1897, living population ..... 103.43 (same for all Egypt, 1897)
1907, living population 108.17
(Hrdlička believes that this sex ratio is erroneous)

	Sex Rate at Birth	Sex Rate at Death
1905, Khargah and Gennah districts	104	104.5
1906, Khargah and Gennah districts	104.7	109.9
1907, all districts, near	98.	101.8
1908, all districts, near	98.	101.8

[1] Hrdlička, "The Natives of Khargah Oasis," *Smithsonian Miscellaneous Collections*, Washington, 1912.

Health. It is hard to gain any knowledge as to the prevalence of diseases. The Oasis enjoys the steady services of an Egyptian Government doctor, usually a young man just graduated from medical school; but the Siwan women seldom allow him to treat their ailments, or even to diagnose them, and the men and children who appeal for his aid are only a small proportion of those needing a doctor's care. From conversing with the doctor, however, and from my own untrained observation, I can hazard a few general remarks on the health of the Siwans.

Malaria, once the dread of all Bedawin and foreigners visiting Siwah, and a standing complaint of the natives, has now been greatly mitigated by the Government drainage service. Siwah suffers its share of measles, typhoid, and other widespread diseases. Middle-aged men say that they remember when measles first visited the Oasis and took a large toll of deaths. A mild epidemic of pest which spread through northeastern Tripoli while I lived in Siwah did not reach us. Diseases of malnutrition are fairly common. The doctor knew of several cases of tuberculosis. Ophthalmia is rare or absent. I did not recognize one case of it, though accustomed to notice it frequently in the Nile Valley. Venereal diseases, particularly gonorrhea, are common.

Siwah is said to have an undue proportion of idiots and insane. I believe, nevertheless, that the reputation for stupidity which the Siwans bear among Egyptians, Arabs, and Europeans comes more from their primitive ways than from real mental deficiency. The Egyptian schoolmaster in Siwah told me that the Siwan boys, as soon as they have learned Arabic, are as intelligent as the boys of the Nile.

Siwans have told me that all Siwan men and boys practice sodomy. I heard of only one instance of homosexuality between females. The active agent in this instance was a Siwan-Bedawin half-breed girl, who had led a fast life in Alexandria and in the coastal towns. Sexual perversions of the mouth seem to be unknown.

Physical Anthropology. I measured and took somatological observations on 138 adult males. These men all claimed pure Siwan ancestry. Owing to the fact that I had no anthropometer, the measurements are of head and face only. For all these measurements I used the standard Hermann instruments and the technique of the International Agreement.

I feel deeply obliged to Dr. E. A. Hooton for his special advice on this section of my paper, to Dr. C. S. Coon for the unpublished material which he supplied for the comparative tables, and to Miss Dorothy Murfitt and Miss Constance Tyler for correcting the mistakes in my calculations.

PHYSICAL DATA ON HEAD AND FACE

METRIC DATA

Siwan Measurements. The metrical characters show the following ranges, means, standard deviations, coefficients of variation, and probable errors.

TABLE 1. HEAD AND FACE MEASUREMENTS AND INDICES[1]

SIWAH: ADULT MALES

	No.	Range	Mean	S. D.	V.
Head length	138[2]	178–206	193.17 ± .33	5.76 ± .23	2.98 ± .12
Head breadth	138	129–153	138.52 ± .24	4.12 ± .17	2.97 ± .12
Cephalic index	138	67–78	71.72 ± .12	2.15 ± .09	3.00 ± .12
Nose height	138	42–61	50.89 ± .21	3.72 ± .15	7.31 ± .30
Nose breadth	137	30–44	37.08 ± .16	2.80 ± .11	7.55 ± .31
Nasal index	136	55–100	73.28 ± .42	7.34 ± .30	10.02 ± .41
Total facial height[3]	137	99–136	118.51 ± .40	6.98 ± .28	5.89 ± .24
Bizygomatic diameter	130	113–141	130.45 ± .31	5.20 ± .22	3.99 ± .17
Total facial index	130	76–103	90.83 ± .34	5.70 ± .24	6.27 ± .26
Bigonial diameter	132	86–116	99.01 ± .32	5.54 ± .23	5.60 ± .23
Minimum frontal diameter	135	90–114	102.76 ± .25	4.23 ± .17	4.12 ± .17
Maximum circumference of head	135	510–580	549.35 ± .79	13.60 ± .56	2.48 ± .10

[1] In this and subsequent similar tables the following abbreviations have been used: No. = number of individuals represented, S. D. = standard deviation, V = coefficient of variation.

[2] When arranging the series for Table 1, after all my calculations had been made, I discovered that I had measured one man twice. This explains the discrepancy in numbers between the present table and Table 13.

[3] Taken from nasion to menton.

The distribution of these characters is represented graphically in Plates I – V. The strong homogeneity of the series is remarkable, especially when one considers the opportunities for race mixture in an oasis where Berbers, Arabs, and Blacks intermingle, and where the women are so accessible to strangers.

Comparison with Other Groups. One may observe from the comparative figures that, excluding the Garah people, who bear strong recent Negro admixture, there are only ten groups in North Africa and the Sudan which are within one point as dolichocephalic as the people of Siwah: namely, the Southern Tuareg, the Arabs of Ougorla, the Berbers of Aures and those of Shemini, the Kassonke and Malinke of the Western Sudan, the peoples of Kanembu and Buduma in the Central Sudan, the Dinka, and the Shilluk. The Dinka and the Southern Tuareg are the only two groups which are more dolichocephalic than the Siwans. All of these means except that from the Southern Tuareg are derived from samples of less than fifty individuals, and four from samples of less than twenty. In cephalic index alone, then, the affiliation may lie in one of two directions, or in both — the western half of the Sahara and the Sudan, rather than with Egypt or Morocco.

Let us see how the nasal index fits in. With regard to this character, the Siwans stand near the platyrrhine end of the North African array, with a nasal index nearly ten points higher than that for the Moroccan Rif, but three points lower than that for Khargah Oasis and the Tunisians of Djerid, represented by large series. But the Siwans are seven points less platyrrhine than the narrowest-nosed of the Barabra groups, twenty-two less than those

of the Western Sudan, sixteen less than those of the Central Sudan, and nineteen less than those of the Nilotic Negroes. The Southern Tuareg, who are slightly narrower-headed than the Siwans, are likewise narrower-nosed by more than eight points. The Dinka, Kanembu, and the people of Shilluk, who approach the Siwans most closely in cephalic index, are re-

TABLE 2. CEPHALIC INDEX: COMPARISON WITH OTHER NORTH AFRICAN GROUPS

No.	Group	Measured by	Cephalic Index
143	Southern Tuareg	Zeltner	71.59
138	*Siwah*	*Cline*	*71.72*
20	Arabs of Ougorlah	Elisseieff (H [1])	72.00
10	Berbers of Aures	Elisseieff (H)	72.00
16	El Garah Oasis	*Cline*	72.47
40	Berbers of Shemini	Bertholon (H)	72.62
53	Berbers of Menzel	Bertholon (H)	72.79
29	Berbers of Ouled Harabi	Chantre (H)	72.82
10	Arabs of Oran	Bleicher (H)	73.21
18	Arabs of Ouled Touarah	Chantre (H)	73.30
50	Egyptians of Baheira	Myers	73.42
36	Egyptians of Fayum	Myers	73.81
20	Arabs of Sinai	Elisseieff (H)	73.87
53	Egyptians of Qenah	Myers	73.94
358	Berbers of Kroumiri	Bertholon (H)	73.99
44	Copts, soldiers (Egypt)	Myers	74.0
369	Egyptian Moslem soldiers	Myers	74.3
64	Berbers of Hama	Bertholon	74.37
41	Arabs of Ouled Ayaidoh	Chantre (H)	74.48
277	Shluh	Coon	74.52
93	"Arabs" of Moroccan Plains	Coon	74.64
91	Fellahin of Egypt	Chantre (H)	74.7
14	Arabs of Djara	Bertholon (H)	74.80
150	Khargah Oasis (Egypt)	Hrdlička	74.83
40	Arabs of the Ma'azah	Chantre (H)	75.0
530	Riffian total	Coon	75.01
197	Northern Senhaja	Coon	75.13
127	Copts	Chantre (H)	75.2
21	Ouled Nagama	Chantre (H)	75.26
20	Ouled Aly	Chantre (H)	75.39
16	Berbers of Mendjez el Bab	Collignon (H)	75.39
15	Berbers of Shawiah	Faidherbe (H)	75.60
18	Non-urban Arabs of Algeria	d'Hercourt (H)	75.82
305	Kabyles	Bertholon and Chantre (H)	76.82
57	Berbers of Shawiah	Randall-MacIver & Wilkin	77.09
184	Berbers of Palestro	Prengrueber (H)	76.04
180	Berbers of Biskrah	Seriziat (H)	76.07
28	Andalusian Moors of Sheshawen	Coon	76.54
361	Kabyles	Bertholon and Chantre (H)	76.82
50	Berbers of Mozabit	Amat (H)	77.03
22	Arabs of Aleppo	Chantre (H)	77.05
73	Ghomarans	Coon	77.26
50	Kabyles	Randall-MacIver & Wilkin	77.44
61	Berbers of Kairowan	Collignon (H)	77.59
16	Ouled Said	Collignon (H)	77.79
330	Berbers of Gerbah	Bertholon (H)	79.94
348	Beoni Maguel of Gerbah	Bertholon (H)	82.24
11	Ouled Zelofras of Gerbah	Bertholon (H)	82.50

[1] Hrdlička.

spectively nineteen, nineteen, and twenty points broader-nosed. In this character, then, the Siwans lie well within the range of North African Whites, as opposed to the Sudanese.

In facial index, the Siwans stand near the long-faced end of the North African series, which is terminated by the means for Moroccan "Arabs," Shluh, and Riffians, who are only slightly longer-faced. The various Moroccan groups all fall within two points of the Siwan mean. The same may be said for the groups of Upper Nilotics, with the exception of some Furawi and Dinka, who are still more long-faced, and the Bari, who seem to be shorter-faced. The Egyptians of the Fayum, Baheira, and Qenah, however, and the Southern Tuareg stand at the opposite, short-faced extreme.

TABLE 3. NASAL INDEX: COMPARISON WITH OTHER NORTH AFRICAN GROUPS

No.	Group	Measured by	Nasal Index
530	Riffian total	Coon	63.56
73	Ghomarans	Coon	63.84
142	Southern Tuareg	Zeltner	64.80
196	Northern Senhaja	Coon	64.91
23	Tunisian Arabs	Collignon (H)	65.2
28	Andalusian Moors of Sheshawen	Coon	66.04
93	"Arabs" of the Moroccan Plains	Coon	66.29
184	Kabyles	Prengrueber (H)	66.5
277	Shluh	Coon	67.11
57	Shawiah	Randall-MacIver and Wilkin	68.37
120	Tunisian Berbers	Collignon (H)	69.8
365	Kabyles	Bertholon and Chantre (H)	69.85
33	Algerians	Collignon (H)	69.9
1334	Tunisians, various	Collignon (H)	70.2
40	Tunisian Berbers of Ellez	Collignon (H)	72.0
50	Kabyles	Randall-MacIver and Wilkin	72.08
50	Berbers, brachycephalic group	Collignon (H)	72.5
136	*Siwah*	*Cline*	*73.28*
6	Moroccans	Collignon (H)	74.3
50	Egyptians of Baheira	Myers	74.4
...	Berbers of Touggourt	Weissgerber (H)	75.0
150	Khargah Oasis	Hrdlička	76.59
113	Tunisians of Djerid	Collignon (H)	76.6
36	Egyptians of Fayum	Myers	77.6
53	Egyptians of Qenah	Myers	78.9
16	El Garah Oasis	Cline	81.3

TABLE 4. CEPHALIC AND NASAL INDICES: COMPARISON WITH VARIOUS GROUPS OF BARABRA (UPPER NILE) [1]

No.	Group	Cephalic Index	No.	Group	Nasal Index
138	*Siwah*	*71.72*	*136*	*Siwah*	*73.28*
6	Bigheh	72.87	13	Chelall	80.42
5	Assouan	75.26	11	Elephantine	80.42
11	Elephantine	76.59	6	Bigheh	81.82
13	Chelall	76.59	5	Assouan	84.78

[1] Chantre.

On comparing these figures with those from modern Siwans, one can see that within the last two millennia the head length has considerably increased. The head breadth has remained about the same. The bizygomatic and minimum frontal diameters are somewhat greater in modern than in ancient skulls — more so than would be entirely accounted for by

the including of soft parts on measurements on the living. The cephalic index has decreased by two points — four points, if we allow for the difference between measurements on the living and those on skulls. The nasal indices are not comparable, and the total facial index is not available for the skulls, owing to the lack of mandibles.

TABLE 5. CEPHALIC AND NASAL INDICES: COMPARISON WITH VARIOUS NILOTIC TRIBES [1]

No.	Group	Cephalic Index	No.	Group	Nasal Index
10	Dinka	71.2	*136*	*Siwah*	*73.*
11	Shilluk	71.7	60	Dinka	92.
138	*Siwah*	*71.7*	10	Nyam Nyam	93.
60	Dinka (second group)	72.8	11	Shilluk	93.
13	Nuer	73.0	7	Bongo	94.
9	Fertit	73.8	4	Bari	95.
15	Fur	74.9	43	Burun	96.
13	Nuba (at Renk)	75.9	13	Nuer	97.
9	Gebelawi	76.3	15	Fur	97.
7	Bongo	76.7	9	Fertit	98.
4	Bari	78.4	13	Nuba (at Renk)	100.
10	Nyam Nyam	79.0	4	Furawi	102.
43	Burun	79.1	9	Gebelawi	102.

[1] All but the Shilluk figures are from Waterston. The Shilluk data are from Tucker and Myers.

TABLE 6. CEPHALIC AND NASAL INDICES: COMPARISON WITH GROUPS OF THE CENTRAL SUDAN [1]

No.	Group	Cephalic Index	No.	Group	Nasal Index
138	*Siwah*	*71.7*	*136*	*Siwah*	*73.3*
4	Kanembu	71.7	9	Kumbra	89.1
32	Buduma	72.3	19	"Arabs"	92.6
20	Mundong	73.8	4	Kanembu	92.7
20	Kotoko	73.9	21	Bagirmi	97.7
21	Bagirmi	74.1	32	Buduma	97.9
20	Borlawa	74.2	18	Kanuri	98.4
18	Kanuri	74.5	20	Borlawa	99.3
20	Ngassar	74.6	20	Ngassar	100.7
19	"Arabs"	74.9	21	Wadama	101.3
11	Banana	77.3	20	Kotoko	102.0
21	Wadama	78.0	20	Mundong	103.0
9	Kumbra	85.2	11	Banana	103.2

[1] These figures from the Central Sudan were published by P. Amaury Talbot.

TABLE 7. CEPHALIC AND NASAL INDICES: COMPARISON WITH GROUPS OF THE WESTERN SUDAN [1]

No.	Group	Cephalic Index	No.	Group	Nasal Index
138	*Siwah*	*71.72*	*136*	*Siwah*	*73.28*
4	Kassonke	72.61	9	Soninke	94.80
37	Malinke	72.66	20	Foulbe	99.06
7	Toucouleurs	73.36	7	Toucouleurs	99.50
12	Ouassoulounke	72.66	37	Malinke	102.58
5	Sarraccolai	74.03	25	Bambara	103.94
25	Bambara	74.69			

[1] These figures from the Western Sudan are taken from data published by Henry Girard.

TABLE 8. FACIAL INDEX: COMPARISON WITH OTHER NORTH AFRICAN GROUPS

No.	Group	Published by	Facial Index
27	Egyptians of the Fayum	Myers	82.96
41	Egyptians of Baheira	Myers	83.19
42	Egyptians of Qenah	Myers	83.29
142	Southern Tuareg	Zeltner	84.18
150	Khargah Oasis	Hrdlička	86.3
50	Kabyles	Randall-MacIver and Wilkin	86.41
57	Shawiah	Randall-MacIver and Wilkin	88.72
73	Ghomarans	Coon	89.75
16	El Garah Oasis	Cline	89.87
195	Northern Senhaja	Coon	90.54
28	Andalusian Moors of Sheshawen	Coon	90.79
130	*Siwah*	*Cline*	*90.83*
277	Shluh	Coon	90.94
93	"Arabs" of Moroccan Plains	Coon	91.33
530	Riffian total	Coon	91.40

TABLE 9. FACIAL INDEX: COMPARISON WITH UPPER NILOTIC GROUPS

No.	Group	Published by	Facial Index
4	Bari	Waterston	88.
60	Dinka	"	89.
43	Burmi	"	89.
15	Fur	"	89.
5	Fertit	"	89.
9	Gebelawi	"	89.
13	Nuba	"	90.
10	Nyam Nyam	"	90.
130	*Siwah*	*Cline*	*91.*
13	Nuer	Waterston	91.
4	Furawi	"	95.
17	Dinka	Tucker and Myers	100.30

Ancient crania, collected in Siwah by Mr. Oric Bates and now in the Peabody Museum, Cambridge, show the following means:

TABLE 10. ANCIENT SIWAH CRANIAL MEASUREMENTS AND INDICES[1]

	No.	Mean	S. D.
Head length	56	183.46 ± .52	5.71 ± .36
Head breadth	56	135.71 ± .38	4.25 ± .27
Minimum frontal	56	90.46 ± .42	4.70 ± .30
Bizygomatic diameter	42	124.48 ± .45	4.29 ± .32
Nose height	52	51.00 ± .28	3.00 ± .20
Nose breadth	51	23.43 ± .16	1.67 ± .11
Cephalic index (from means of head length and breadth)	56	73.77	
Nasal index (from means of nose height and breadth)	56	45.09	

[1] I take these figures from calculations made by Mr. W. W. Howells. For further data on these Siwan skulls, see the article by Dr. Douglas E. Derry, *A Study of the Crania from the Oasis of Siwah*, Harvard African Studies, Vol. VIII, Cambridge, Mass., 1927, pp. 199–222.

OBSERVATIONAL DATA

Skin Color. In skin color, comparing the volar surface of the forearm with the Von Luschan color-scale, I found the following range and frequencies. The categories to the right of the table represent the observations which I took on skin color in Siwah before I had acquired the Von Luschan color-scale. I give their frequencies and percentages, and endeavor in a rough way to equate them with the finer distinctions of the scale.

Scale No.	No.	Per cent		No.	Per cent
7	3	4.4			
8	0	....	Very light:	5,	9.08
9	5	7.2			
10	1	1.4			
11	1	1.4	Medium light:	25,	45.45
12	10	14.5			
13	4	5.8			
14	8	11.6			
15	13	18.8			
16	0	....	Medium brown:	19,	34.54
17	5	7.2			
18	4	5.8			
19	1	1.4			
20	0	....			
21	0	....			
22	5	7.2			
23	3	4.4			
24	3	4.4	Dark brown:	6,	10.90
25	1	1.4			
26	1	1.4			
27	0	....			
28	0	....			
29	1	1.4			
Total	69	99.7	Total	55	99.97

Eye Color and Eye Folds. Of 114 cases in which I noted eye color, 2.63 per cent had black eyes, 74.56 per cent dark brown, 14.03 per cent medium or light brown, 5.26 per cent gray-brown, blue-brown, or green-brown, 2.63 per cent gray-green or blue-green, and only one individual had eyes of light blue. The ten men who showed varying degrees of gray, green, or blue in the eye were, with the exception of two, in the light-skinned class, but only two or three of them had brown hair.

The sclera of the eye was usually clear white, sometimes yellow, but seldom speckled or bloodshot.

Of the 91 cases for which I recorded eye fold, 24 per cent had none, 22 per cent had a slight external fold, 42 per cent had a moderate one, 10 per cent a pronounced one, and one individual, about 70 years old, displayed an external eye fold of great prominence. One man showed a slight median fold, but no internal folds appeared among the adults. The ten men with pronounced or prominent external folds averaged in facial index 90.17, a slightly broader face than the mean for the whole series, which is 91.00, thus failing to suggest a cor-

relation between external eye fold and narrowness of face. Only three of these ten men were at or above 60 years of age.

Hair. I observed hair form in 110 men. The custom of shaving all or most of the head made this observation often difficult or impossible. 1.82 per cent of those noted had woolly hair, 24.54 per cent curly-frizzly, 40.91 per cent deep waves, 28.18 per cent low waves, and 4.55 per cent straight. Of the 29 cases showing woolly or frizzly hair, only six had a prominent flare of the nasal alae, and there appeared as little tendency for such hair to associate itself with other negroid non-metrical characters.

Of a total of 77 cases where I observed hair texture, 15.58 per cent was coarse, 50.64 per cent medium, and 33.77 per cent fine.

Six of the men observed had dark brown hair; the rest had black or gray.

Nose. With regard to the nasal alae, 4.40 per cent of the 91 cases observed were compressed, 50.55 per cent were moderate, 42.86 per cent had a pronounced flare, and 2.20 per cent were very flaring. Nasal profiles, of the 98 noted, were 41.84 per cent straight, 40.82 per cent convex, and 17.35 per cent concave. In cases where both the nasal profile and the flare of the nasal alae were observed, the convex noses clustered slightly more with the moderate alae than with those of marked flare, whereas the straight and the concave noses were evenly distributed between the moderate and the prominent types of alae. Of the 94 instances where I noted the nasion depression, one individual had none, 8.51 per cent had only slight, 50 per cent had moderate, 38.30 per cent had pronounced, and two individuals very pronounced depressions. As to the height and breadth of the nasal bridge, 8.11 per cent of the 74 cases observed were low, with moderate breadth; 13.51 per cent low and very broad; 16.22 per cent moderately high and very broad; 43.24 per cent of moderate height and moderate breadth; 9.46 per cent of moderate height and narrow; 6.76 per cent very high and moderately broad; and 2.70 per cent — two individuals — very high and very broad. None were very high and very narrow. The nasal bridge is thus moderately high and broad, but with a distinct bias toward broadness. A finer analysis of Siwan nose forms would probably show the negroid types fairly well segregated.

Miscellaneous Observations. I do not trust my observations on the malars; but in the whole series I noted nine instances of prominent malars, and one case where they were very prominent. The rest were moderate, compressed, or unobserved.

Siwan chins are poorly developed: 14.29 per cent of a series of 91 were receding, 41.76 per cent were small, 35.16 per cent moderate, and only 8.79 per cent were prominent.

In 113 individuals I observed the occlusion of the upper and lower teeth in the incisive region, and found that 38.18 per cent had edge-to-edge bite, 31.82 per cent showed a slight overlapping of the upper incisors over the lower, whereas in 26.36 per cent this overlapping was moderate, and in 3.64 per cent — four individuals — very prominent. In no case did the lower incisors overlap the upper.

The palate is usually parabolic, but I observed six palates of U shape.

With regard to general cranial contours, Siwan heads are often scaphocephalic, and have a marked occipital protrusion. The forehead is fairly high and straight, with a slight bulbous tendency.

METRIC AND OBSERVATIONAL DATA ON ADOLESCENTS

Measurements. Tables 11 and 12 give the means and their constants for Siwan boys.

TABLE 11. HEAD AND FACE MEASUREMENTS AND INDICES

SIWAH: MALES 12–14 YEARS OLD

	No.	Range	Mean	S. D.	V.
Head length	15	177–196	185.20±1.06	6.08± .75	3.28± .40
Head breadth	15	126–144	132.87± .72	4.11± .51	3.09± .38
Cephalic index	15	67–76	71.45± .41	2.36± .29	3.30± .41
Nose height	15	35–51	42.40± .72	4.11± .51	9.69±1.19
Nose breadth	15	26–39	32.73± .55	3.15± .39	9.62±1.18
Nasal index	15	68–89	77.40± .93	5.35± .66	6.91± .85
Total facial height	15	92–118	103.50±1.10	6.32± .78	6.11± .75
Bizygomatic diameter	15	99–124	114.87±1.34	7.71± .95	6.71± .83
Total facial index	12	81–97	88.58±1.01	5.20± .72	6.10± .84
Bigonial diameter	12	83–99	92.17± .70	4.06± .56	4.41± .61
Minimum frontal diameter	15	94–105	99.13± .61	3.50± .43	3.53± .44
Maximum circumference of head	15	505–560	526.00±2.59	14.85±1.83	2.82± .35

TABLE 12. HEAD AND FACE MEASUREMENTS AND INDICES

SIWAH: MALES 15–17 YEARS OLD

	No.	Range	Mean	S. D.	V.
Head length	8	177–193	184.25±1.07	4.49± .76	2.44± .41
Head breadth	8	124–139	132.38±1.14	4.79± .81	3.62± .61
Cephalic index	8	66–77	71.75± .82	3.45± .58	4.81± .81
Nose height	8	41–51	46.38± .82	3.42± .58	7.37±1.24
Nose breadth	8	30–37	33.38± .53	2.23± .38	6.68±1.13
Nasal index	8	61–90	72.75±1.96	8.24±1.39	11.33±1.91
Total facial height	5	97–113	106.20±1.78	5.91±1.26	5.56±1.19
Bizygomatic diameter	7	114–126	119.29±1.28	5.01± .90	4.20± .76
Total facial index	6	85–90	87.83± .77	2.79± .54	3.18± .62
Bigonial diameter	8	83–104	92.37±1.45	6.10±1.03	6.60±1.11
Minimum frontal diameter	8	93–106	99.75± .83	3.49± .59	3.50± .59
Maximum circumference of head	8	515–550	525.10±2.67	11.20±1.89	2.13± .36

Observations. In skin color the two series of boys appear as follows:

12–14 years old

Von Luschan Scale No.	No.
3	1
4	0
5	0
6	0
7	2
8	0
9	2
10	1
11	3
12	1
13	1
14	1
Total	12

15–17 years old

Von Luschan Scale No.	No.
3	0
4	0
5	0
6	0
7	0
8	0
9	1
10	0
11	3
12	1
13	0
14	0
23	1
Total	6

Five cases were recorded verbally, rather than by number on the color-scale, but all of these were in the light brown or medium brown class.

Of the boys twelve to fourteen years old, one had black eyes, seven had dark brown, one had medium brown, three light brown, and two green-brown. Of those from fifteen to seventeen years of age, two had black eyes, four dark brown, one light brown, and one blue-brown.

Where eye fold was noted, the boys of the younger group show one instance having no eye fold, two having the median fold, two the trace of an external fold, two an external fold, and three the trace of an internal fold. The older group show six with no eye fold, one with an external fold, and one with an internal fold.

With regard to hair form, the younger group includes one boy with straight hair, five with low waves, and five with deep waves. Of the older boys, two had hair with low waves, and four had hair with deep waves.

In nasal profile, the younger boys included two with convex noses, two with straight, and two with concave, the rest being unobserved. The older boys displayed two convex nasal profiles, two with straight, one with concave, and the rest unobserved.

In cases where I noted the occlusion of the upper to the lower teeth in the incisive region, two boys of the younger class had a marked over-bite, five had this character to a moderate degree, three had it to a slight degree, and six showed an edge-to-edge bite. Of the older boys, three had a marked over-bite, two had a slight over-bite, and two had the edge-to-edge occlusion.

The other observational characters of these boys do not seem worth recording.

RAW DATA

TABLE 13. INDIVIDUAL MEASUREMENTS AND INDICES OF ADULT SIWAN MALES

In this table and Table 14 the following abbreviations have been used: No. = individual number, HL = head length, HB = head breadth, CI = cephalic index, NH = nose height, NB = nose breadth, NI = nasal index, TFH = total facial height, BzD = bizygomatic diameter, TFI = total facial index, BIG = bigonial diameter, MF = minimum frontal diameter, MC = maximum circumference of head, Ad. = adult.

No.	Age	HL	HB	CI	NH	NB	NI	TFH	BzD	TFI	BIG	MF	MC
1	25	194	141	72.68	50	39	78.00	119	118	100.85	98	104	557
2	20	197	138	70.05	49	35	71.43	120	124	96.77	90	99	552
3	20	184	132	71.74	49	36	73.47	112	125	89.60	99	108	531
4	53	191	145	75.92	56	40	71.43	128	...	.....	108	109	557
5	26	185	136	73.51	53	37	69.81	109	129	84.50	86	95	531
6	Ad.	183	138	75.41	54	35	64.81	113	130	86.92	98	100	533
7	55	195	141	72.31	47	36	76.60	107	134	79.85	102	101	550
8	48	196	139	70.92	51	37	72.55	127	133	95.49	96	106	562
9	38	189	141	74.60	50	38	76.00	106	131	80.92	95	106	539
10	25	182	132	72.53	46	37	80.43	107	121	88.43	101	100	524
11	32	201	140	69.65	56	40	71.43	122	128	95.31	95	106	561
12	Ad.	197	139	70.56	54	40	74.07	120	134	89.55	102	108	564
13	56	190	142	74.74	58	36	62.07	136	133	102.26	95	102	545
14	27	193	143	74.09	47	36	76.60	108	130	83.08	98	104	550
15	45	200	136	68.00	50	30	60.00	124	120	103.33	86	104	553
16	Ad.	186	137	73.66	47	37	78.72	117	134	87.31	92	98	520
17	35	190	139	73.16	52	33	63.46	118	...	.....	100	104	540
18	60	195	135	69.23	45	40	88.89	112	124	90.32	93	100	544

No.	Age	HL	HB	CI	NH	NB	NI	TFH	BzD	TFI	BIG	MF	MC
19	70	193	134	69.43	52	34	65.38	123	130	94.62	94	98	535
20	Ad.	195	136	69.74	47	37	78.72	115	133	86.47	105	110	544
21	30	189	139	73.54	51	39	76.47	111	122	90.98	95	...	539
22	26	196	141	71.94	50	38	76.00	114	128	89.06	100	100	548
23	29	181	137	75.69	51	38	74.51	122	132	92.42	94	104	526
24	56	197	136	69.04	50	38	76.00	115	132	87.12	101	99	553
25	30	193	140	72.54	48	34	70.83	108	131	82.44	93	102	553
26	54	192	135	70.31	55	39	70.91	118	133	88.72	105	103	539
27	80	205	146	71.22	58	43	74.14	121	141	85.82	103	105	575
28	45	196	139	70.92	48	41	85.42	115	135	85.19	99	105	557
29	65	182	137	75.27	50	42	84.00	114	134	85.07	89	96	525
30	40	189	139	73.54	47	38	80.85	103	131	78.63	105	102	538
31	Ad.	179	133	74.30	48	35	72.92	110	125	88.00	92	90	520
32	35	190	143	75.26	52	38	73.08	117	137	85.40	97	105	552
33	50	202	140	69.31	53	36	67.92	119	129	92.25	96	101	572
34	21	186	140	75.27	49	34	69.39	107	128	83.59	99	98	537
35	Old	190	130	68.42	56	31	55.36	119	126	94.44	96	96	520
36	40	196	137	69.90	51	37	72.55	118	128	92.19	87	94	546
37	20	193	137	70.98	51	37	72.55	128	134	95.52	91	103	555
38	60	190	138	72.63	53	42	79.25	127	130	97.69	90	103	538
39	65	188	135	71.81	55	36	65.45	120	130	92.31	92	99	533
40	55	198	133	67.17	50	39	78.00	118	127	92.91	97	103	546
41	45	186	130	69.89	48	36	75.00	111	130	85.38	99	101	534
42	65	204	140	68.63	54	39	72.22	107	132	81.06	93	106	562
43	Ad.	195	137	70.26	52	41	78.85	125	136	91.91	100	111	540
44	Ad.	192	135	70.31	52	39	75.00	115	121	95.04	92	98	543
45	68	203	140	68.97	44	36	81.82	117	132	88.64	99	101	563
46	65	197	135	68.53	52	38	73.08	116	131	88.55	...	104	553
47	55	199	144	72.36	50	40	80.00	118	137	86.13	104	101	566
48	30	196	137	69.90	52	35	67.31	131	129	101.55	103	105	550
49	34	181	137	75.69	48	44	91.67	114	125	91.20	98	100	525
50	56	196	146	74.49	49	37	75.51	115	139	82.73	103	112	546
51	52	189	134	70.90	55	36	65.45	113	126	89.68	99	97	535
52	Ad.	186	129	69.35	45	31	68.89	113	122	92.62	102	103	520
53	Ad.	188	139	73.94	51	42	82.35	111	125	88.80	92	102	540
54	45	201	137	68.16	55	41	74.55	122	139	87.77	106	107	557
55	Ad.	192	135	70.31	52	36	69.23	121	126	96.03	95	101	540
56	65	190	133	70.00	57	36	63.16	123	129	95.35	102	102	535
57	30	193	136	70.47	54	31	57.41	115	126	91.27	95	100	545
58	37	195	143	73.33	55	38	69.09	123	139	88.49	105	114	555
59	70	193	134	69.43	51	37	72.55	119	131	90.84	100	103	545
60	60	188	134	71.28	58	41	70.69	123	127	96.85	99	102	535
61	Ad.	192	137	71.35	46	30	65.22	117	130	90.00	97	97	538
62	45	200	143	71.50	49	40	81.63	125	139	89.93	97	108	570
63	22	185	132	71.35	46	34	73.91	110	124	88.71	102	100	530
64	65	198	142	71.72	49	39	79.59	128	133	96.24	110	103	558
65	Ad.	203	138	67.98	44	39	88.64	114	134	85.07	98	104	560
66	Ad.	196	135	68.88	52	40	76.92	127	130	97.69	95	102	548
67	40	196	142	72.45	53	39	73.58	122	137	89.05	102	100	549
68	Ad.	187	137	73.26	53	..	.....	...	...	.....	...	...	...
69	26	201	140	69.65	50	38	76.00	127	126	100.79	95	101	565
70	35	196	134	68.37	48	34	70.83	115	126	91.27	92	103	550
71	35	195	142	72.82	58	37	63.79	126	133	94.74	97	103	557
72	30	191	140	73.30	55	36	65.45	118	130	90.77	98	104	541
73	53	190	136	71.58	47	39	82.98	99	130	76.15	105	100	539
74	40	201	139	69.15	47	40	85.11	114	129	88.37	99	94	562
75	38	195	145	74.36	53	35	66.04	121	130	93.08	101	...	548

No.	Age	HL	HB	CI	NH	NB	NI	TFH	BzD	TFI	BIG	MF	MC
76	Ad.	198	140	70.71	47	36	76.60	119	...	.....	99	107	550
77	27	196	140	71.43	51	35	68.63	126	132	95.45	99	109	557
78	24	194	144	74.23	50	35	70.00	117	137	85.40	96	105	551
79	48	192	136	70.83	52	38	73.08	123	131	93.89	108	105	545
80	40	190	137	72.11	50	38	76.00	125	134	93.28	100	106	535
81	27	195	146	74.87	48	35	72.92	118	128	92.19	107	107	560
82	20	184	135	73.37	58	39	67.24	118	128	92.19	95	106	532
83	Ad.	190	137	72.11	51	34	66.67	120	124	96.77	95	100	538
84	20	193	141	73.06	58	34	58.62	127	128	99.22	100	108	554
85	Ad.	190	145	76.32	55	34	61.82	122	135	90.37	...	113	560
86	30	205	147	71.71	51	34	66.67	122	132	92.42	...	106	582
87	30	203	146	71.92	54	40	74.07	131	136	96.32	109	110	567
88	25	195	134	68.72	52	35	67.31	120	127	94.49	94	103	550
89	Ad.	204	144	70.59	57	44	77.19	123	...	.....	104	106	570
90	Ad.	187	136	72.73	47	37	78.72	113	128	88.28	104	107	535
91	55	189	139	73.54	59	38	64.41	113	...	.....	100	105	538
92	35	189	144	76.19	56	36	64.29	125	135	90.58	95	105	546
93	Ad.	197	137	69.54	52	40	76.92	122	130	93.85	95	99	553
94	45	191	137	71.73	55	39	70.91	119	130	91.54	95	100	544
95	65	197	140	71.07	51	36	70.59	122	133	91.73	102	103	563
96	40	193	142	73.58	50	33	66.00	129	131	98.47	101	103	552
97	50	186	135	72.58	49	35	71.43	119	120	99.17	113	104	536
98	40	194	140	72.16	55	37	67.27	133	130	102.31	100	101	554
99	35	191	140	73.30	48	39	81.25	127	126	100.79	98	101	550
100	40	187	134	71.66	53	33	62.26	122	124	98.39	95	96	530
101	50	191	135	70.68	49	37	75.51	122	131	93.13	102	97	540
102	35	196	144	73.47	54	41	75.93	124	128	96.88	97	100	555
103	20	187	135	72.19	49	34	69.39	124	125	99.20	101	104	532
104	22	187	137	73.26	55	34	61.82	124	130	95.38	96	100	536
105	30	187	135	72.19	47	38	80.85	120	128	93.75	96	95	538
106	35	193	140	72.54	50	30	60.00	128	134	95.52	108	106	555
107	60	178	129	72.47	50	39	78.00	118	117	100.85	95	93	512
108	40	204	142	69.61	49	39	79.59	128	137	93.43	109	106	...
109	30	200	135	67.50	44	34	77.27	128	131	97.71	104	110	565
110	40	188	134	71.28	49	34	69.39	123	128	96.09	99	100	527
111	23	192	142	73.96	52	34	65.38	128	131	97.71	...	104	553
112	40	193	140	72.54	51	37	72.55	117	134	87.31	100	98	542
113	65	193	132	68.39	53	38	71.70	106	135	78.52	102	104	535
114	40	199	144	72.36	52	36	69.23	122	139	87.77	100	109	570
115	70	190	131	68.95	46	38	82.61	111	127	87.40	94	95	538
116	40	194	142	73.20	57	34	59.65	121	134	90.30	109	107	555
117	53	197	145	73.60	52	37	71.15	122	140	87.14	110	105	563
118	40	196	146	74.49	42	37	88.10	109	137	79.56	97	103	576
119	40	185	136	73.12	46	35	76.09	113	134	84.33	97	103	535
120	38	194	142	73.20	53	34	64.15	111	135	82.22	103	101	560
121	40	197	140	71.07	49	38	77.55	115	141	81.56	116	111	557
122	40	194	138	71.13	44	38	86.36	105	125	84.00	94	100	546
123	40	194	140	72.16	52	35	67.31	114	130	87.69	99	101	547
124	40	200	139	69.50	47	37	78.72	120	131	91.60	106	105	557
125	40	204	142	69.61	49	38	77.55	122	136	89.71	106	108	572
126	40	197	142	72.08	44	44	100.00	108	135	80.00	107	100	556
127	Ad.	194	138	71.13	50	36	72.00	119	131	90.84	93	106	566
128	60	194	141	72.68	54	43	79.63	117	141	82.98	115	106	555
129	35	191	136	71.20	45	36	80.00	111	126	88.10	91	101	540
130	Ad.	201	138	68.66	49	38	77.55	121	...	.....	...	106	562
131	38	186	138	74.19	47	35	74.47	105	113	92.92	100	97	530
132	50	197	139	70.56	45	37	82.22	119	128	92.97	97	103	556

No.	Age	HL	HB	CI	NH	NB	NI	TFH	BxD	TFI	BIG	MF	MC
133	50	188	136	72.34	48	38	79.17	114	125	91.20	96	97	525
134	58	193	133	68.91	54	39	72.22	114	132	86.36	100	101	540
135	55	206	143	69.42	54	40	74.07	134	137	97.81	101	105	565
136	70	195	153	78.46	61	37	60.66	133	139	95.68	102	103	573
137	Ad.	196	140	71.43	51	37	72.55	120	137	87.59	98	102	551

TABLE 14. INDIVIDUAL MEASUREMENTS AND INDICES OF SIWAN BOYS

No.	Age	HL	HB	CI	NH	NB	NI	TFH	BxD	TFI	BIG	MF	MC
1	5	180	135	75.00	..	..	.....	95	...	.....	...	99	...
2	5	165	128	77.61	86	36	42.35	86	105	81.90	85	96	480
3	10	178	138	77.53	46	33	71.74	103	118	87.28	94	99	510
4	10	182	128	70.33	40	29	72.50	95	115	82.61	87	94	516
5	10	178	135	75.84	43	31	72.09	102	114	89.47	84	99	515
6	11	184	134	72.83	40	32	80.00	100	115	86.96	90	98	520
7	11	174	128	73.56	40	29	72.50	94	112	83.93	86	98	495
8	12	179	133	74.30	35	31	88.57	92	114	80.70	83	96	520
9	12	189	133	70.37	40	31	77.50	107	111	96.40	91	96	525
10	12	180	131	72.78	44	33	75.00	105	115	91.30	90	99	515
11	12	196	137	69.90	46	38	82.61	108	122	88.52	99	98	550
12	12	187	131	70.05	38	31	81.58	107	...	.....	...	96	530
13	12	190	128	67.37	44	32	72.73	102	112	91.07	91	101	530
14	13	177	126	71.19	40	33	82.50	102	112	90.18	114	96	504
15	13	177	135	76.27	40	31	77.50	99	...	.....	90	94	504
16	14	182	136	74.73	46	35	76.09	105	121	86.69	98	104	530
17	14	196	144	73.47	51	39	76.47	118	122	96.72	...	105	559
18	14	187	135	72.19	40	29	72.50	98	118	83.05	92	103	525
19	14	178	131	73.60	48	34	70.83	115	124	92.74	95	98	506
20	14	185	130	70.27	38	26	68.42	101	...	.....	92	99	520
21	14	183	126	67.74	47	33	70.21	106	115	92.17	87	98	517
22	14	189	132	69.84	41	34	82.93	99	121	81.82	90	105	522
23	14	186	131	70.43	44	34	77.27	104	124	83.06	95	97	522
24	15	184	129	70.11	46	34	73.91	103	114	90.35	86	93	515
25	15	183	130	71.04	42	37	89.09	107	123	86.99	93	102	518
26	15	187	124	66.31	41	32	78.05	97	114	85.09	83	98	518
27	15	187	135	72.19	46	30	65.22	113	114	90.35	90	101	531
28	16	177	137	77.40	51	36	70.59	112	126	88.89	96	106	522
29	16	182	129	70.88	46	34	73.91	...	119	.....	91	98	516
30	17	181	139	76.80	51	31	60.78	106	...	.....	104	100	515
31	18	184	138	75.00	45	36	80.00	108	132	81.81	95	105	523
32	18	188	136	72.34	46	40	86.95	106	126	84.13	89	105	545
33	18	182	137	75.22	48	37	77.08	109	128	85.16	100	98	525

BIBLIOGRAPHY

CHANTRE, E., "Les Barabra," *Societe d'Anthropologie de Lyon*, Bulletin 20, Lyon, 1901.

COON, C. S., *Tribes of the Rif*, Harvard African Studies, Vol. IX, Cambridge, Mass., 1931.

DERRY, D. E., *A Study of the Crania from the Oasis of Siwah*, Harvard African Studies, Vol. VIII, Cambridge, Mass., 1927.

GIRARD, H., "Notes Anthropometriques sur quelques Soudanais occidentaux," *l'Anthropologie*, Vol. XIII, no. 1, 1902.

HRDLIČKA, A., "The Natives of Khargah Oasis," *Smithsonian Miscellaneous Collections*, Washington, 1912.

MYERS, C. S., "Contributions to Egyptian Anthropology," *Journal of the Royal Anthropological Institute*, Vol. XXIII, 1903; Vol. XXV, 1905; Vol. XXXVI, 1906; Vol. XXXVIII, 1908.

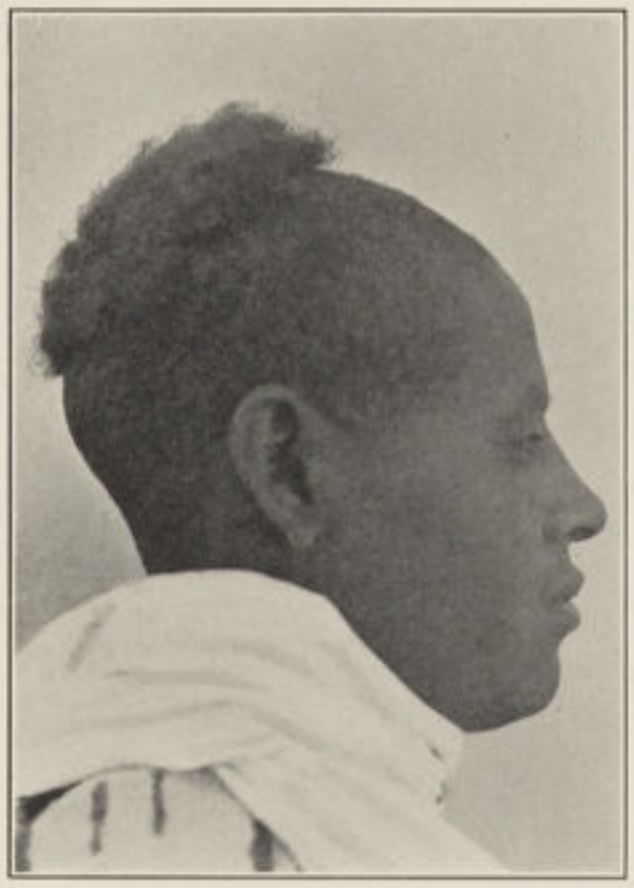
RANDALL-MACIVER, D. and WILKIN, A., *Libyan Notes*, London, New York, 1903.

TALBOT, P. A., "Notes on the Anthropometry of Some Central Sudan Tribes," *Journal of the Royal Anthropological Institute*, Vol. XLVI, 1916.

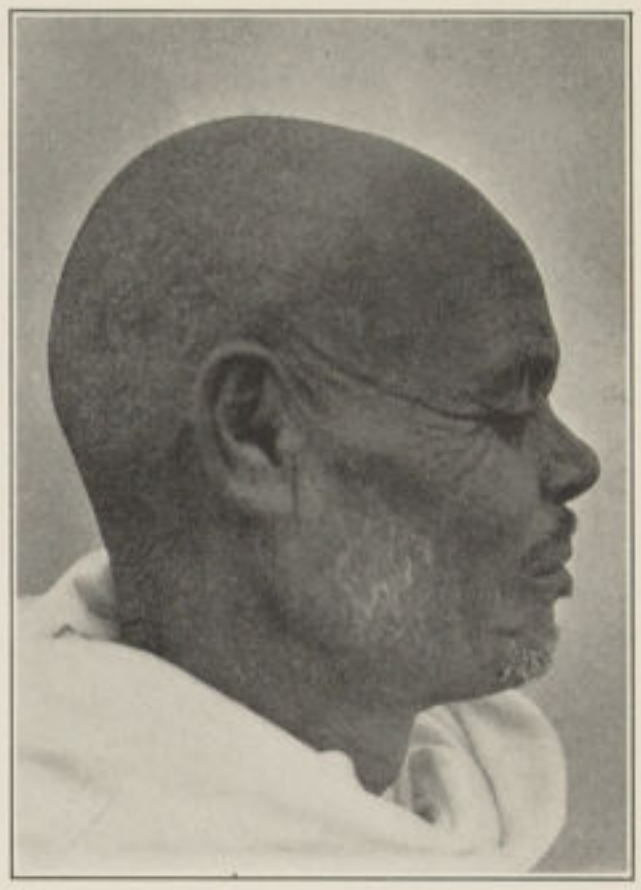
TUCKER, A. W. and MYERS, C. S., "A contribution to the Anthropology of the Sudan," *Journal of the Royal Anthropological Institute*, Vol. XL, 1910.

WATERSTON, D., "Report upon the Physical Characteristics of Some of the Nilotic Negroid Tribes," Gordon Memorial College, Wellcome Research Laboratories, Khartum, Sudan, Third Report, London, 1908.

ZELTNER, FR. DE, "Etude anthropologique sur les Touareg du Sud," *l'Anthropologie*, Vol. XXV, no. 5, 1914.

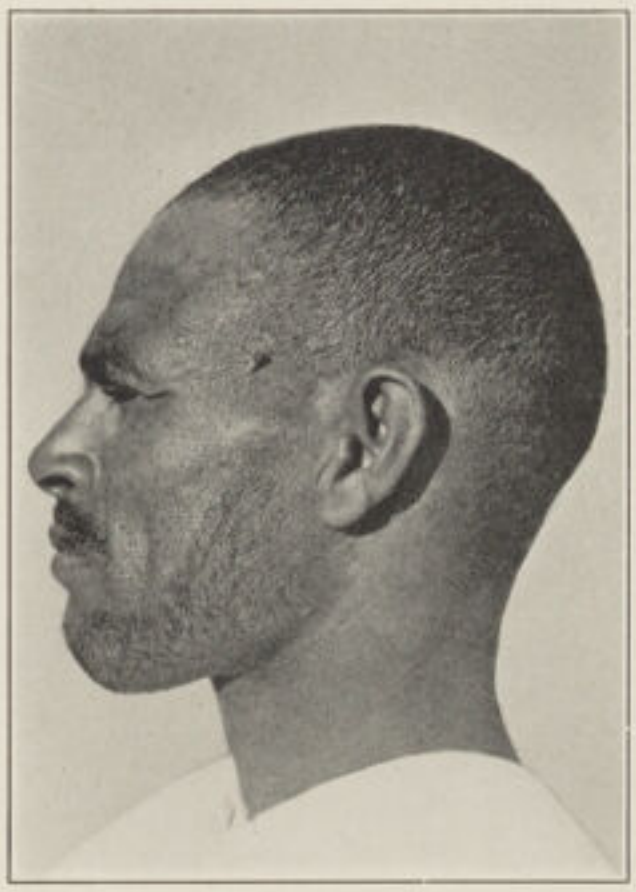


a



b

Age 55. Cephalic index 72.31. Nasal index 76.60. Total facial index 80.59. Skin color, medium brown. Eye color, dark brown



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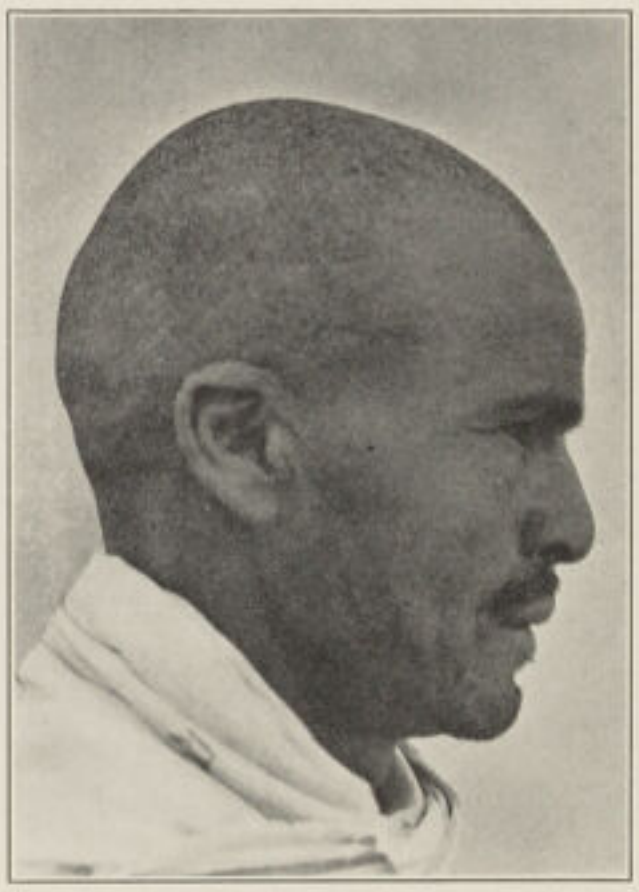
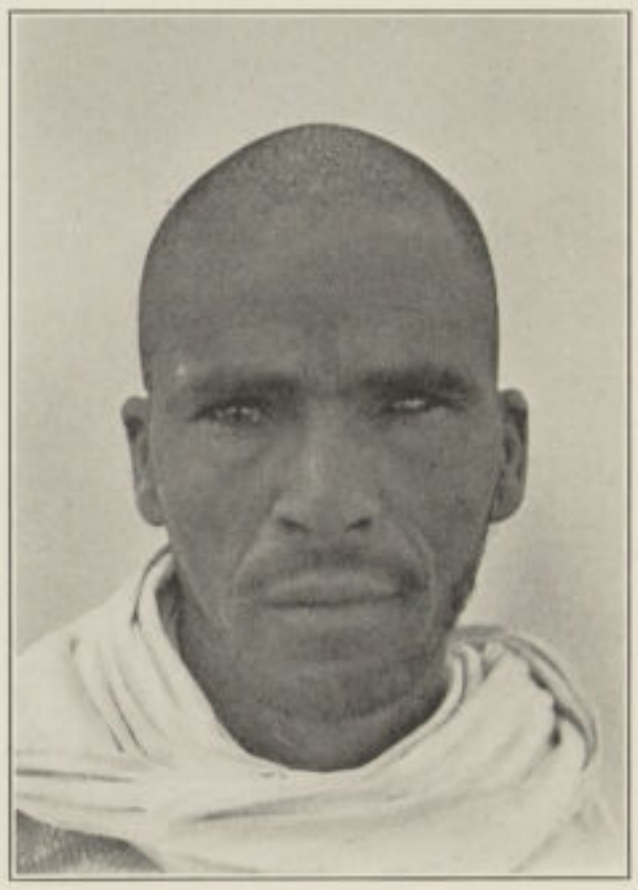
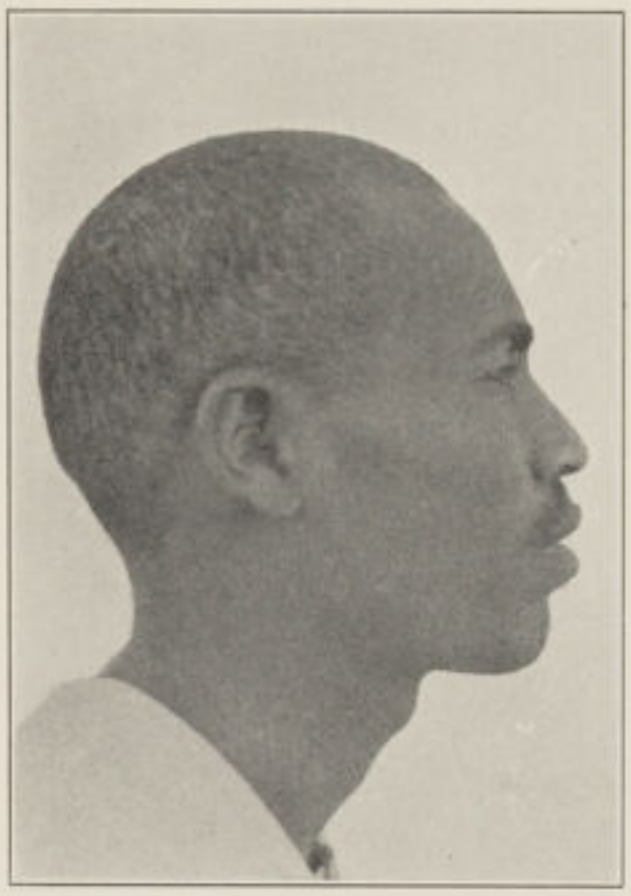




d

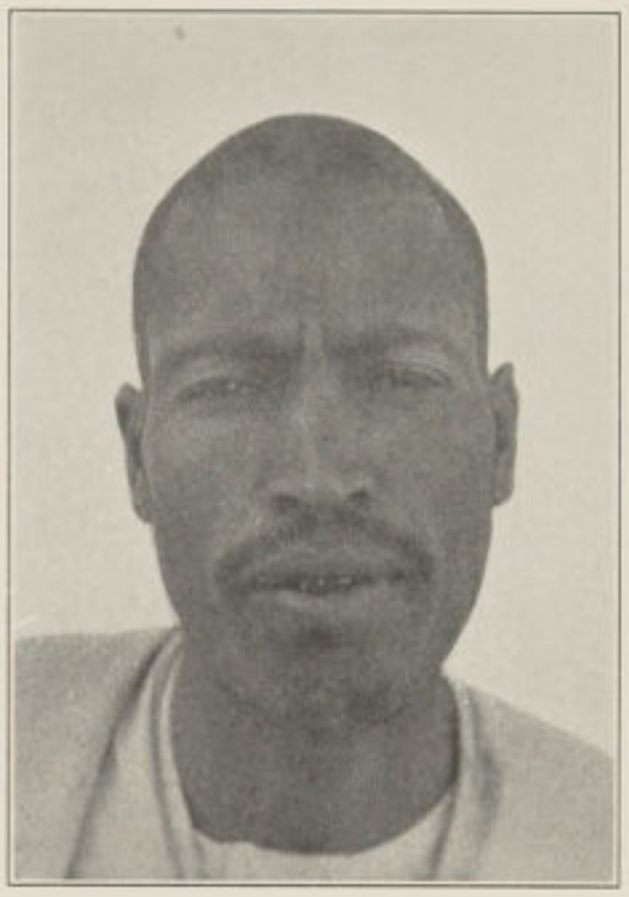
Age 30. Cephalic index 72.54. Nasal index 70.83. Total facial index 82.44. Skin color, medium light brown. Eye color, dark brown

TYPES OF SIWAN ADULT MALES



a

Age 45. Cephalic index 68.0. Nasal index 60.0. Total facial index 103.33. Skin color, light brown



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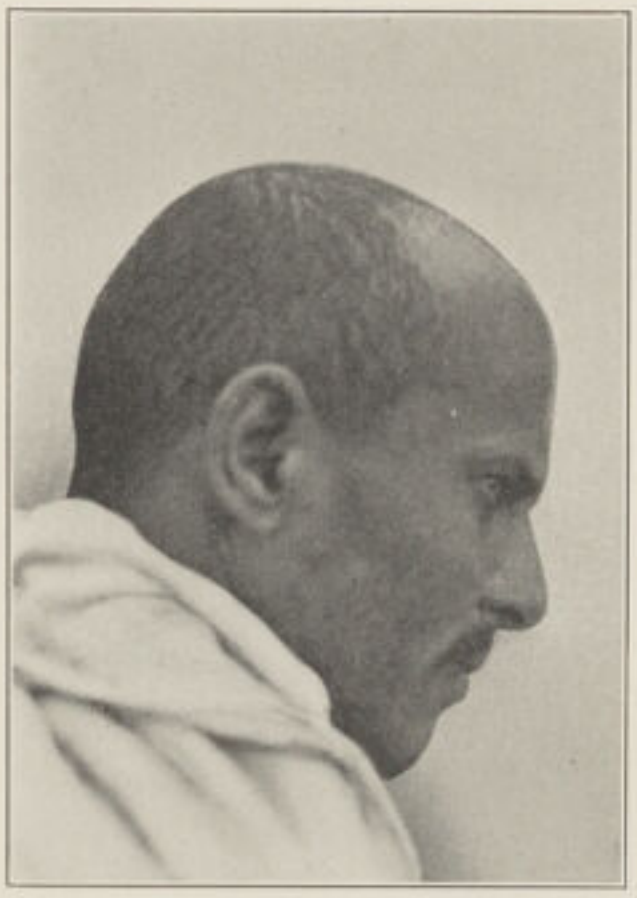
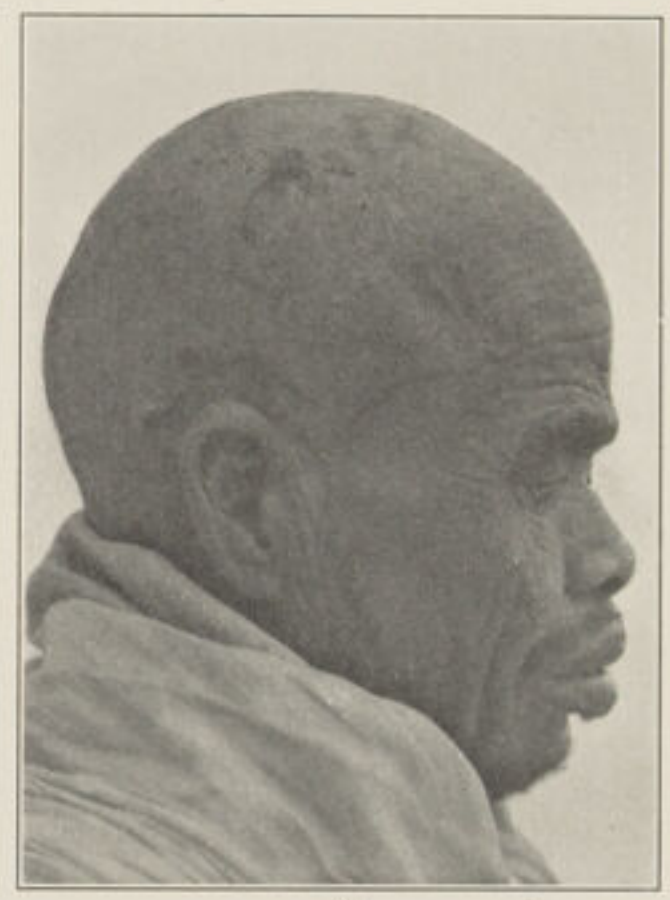


c

Age 35. Cephalic index 73.16. Nasal index 63.46. Total facial index 113.46



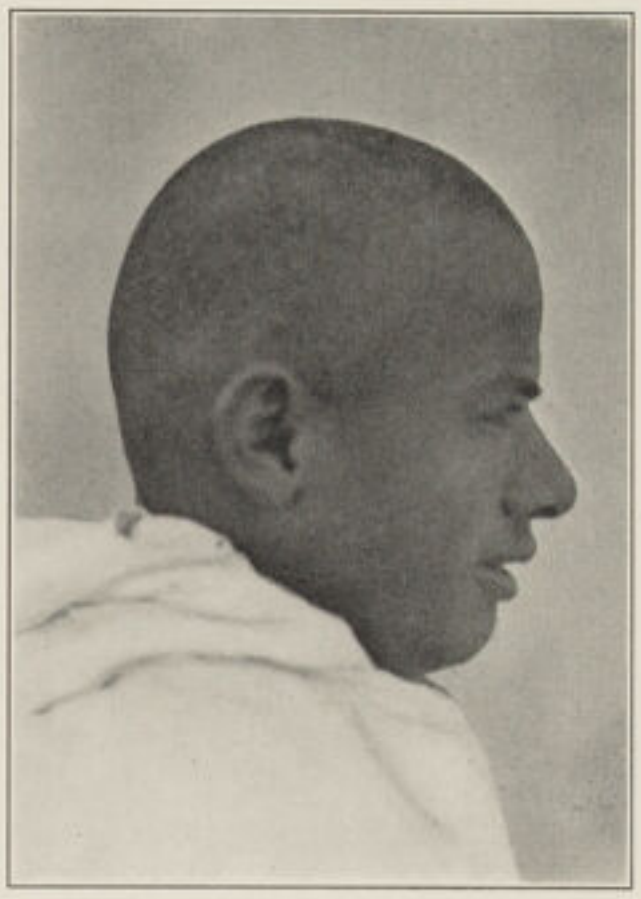
d

Age 40. Cephalic index 74.60. Nasal index 76.00. Total facial index 80.96. Skin color, light brown. Eye color, light blue

TYPES OF SIWAN ADULT MALES

a

Cephalic index 71.43. Nasal index 72.55. Total facial index 87.59



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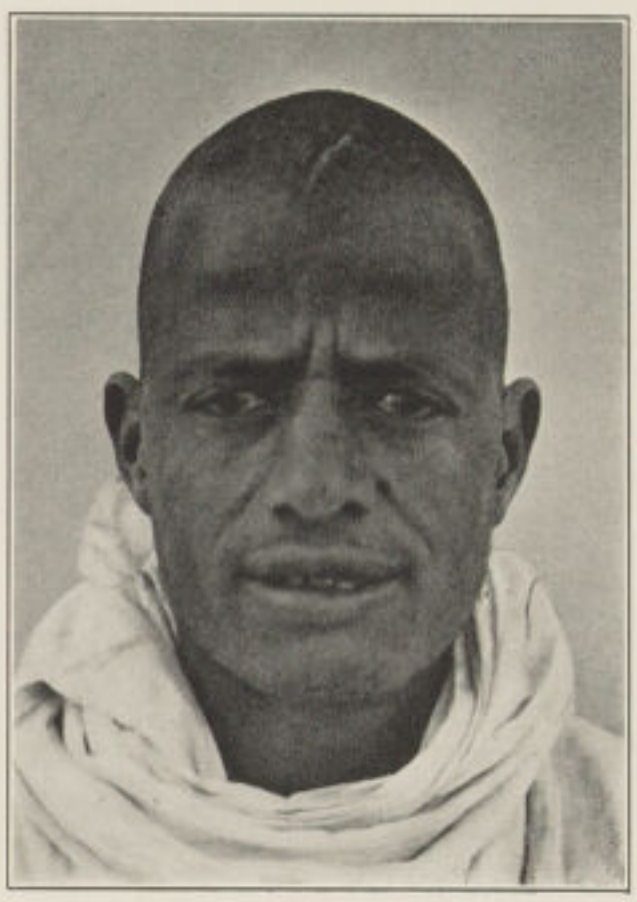

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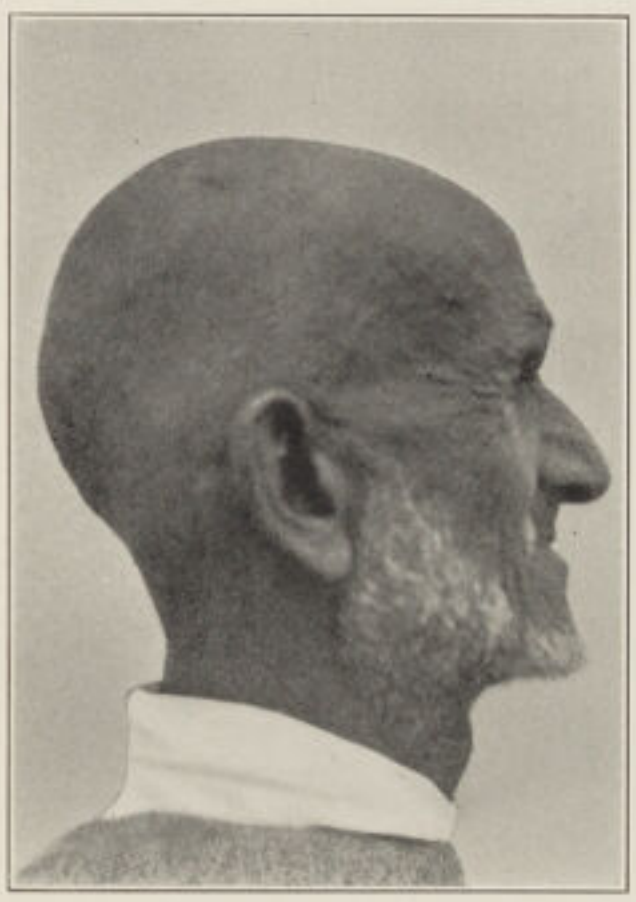

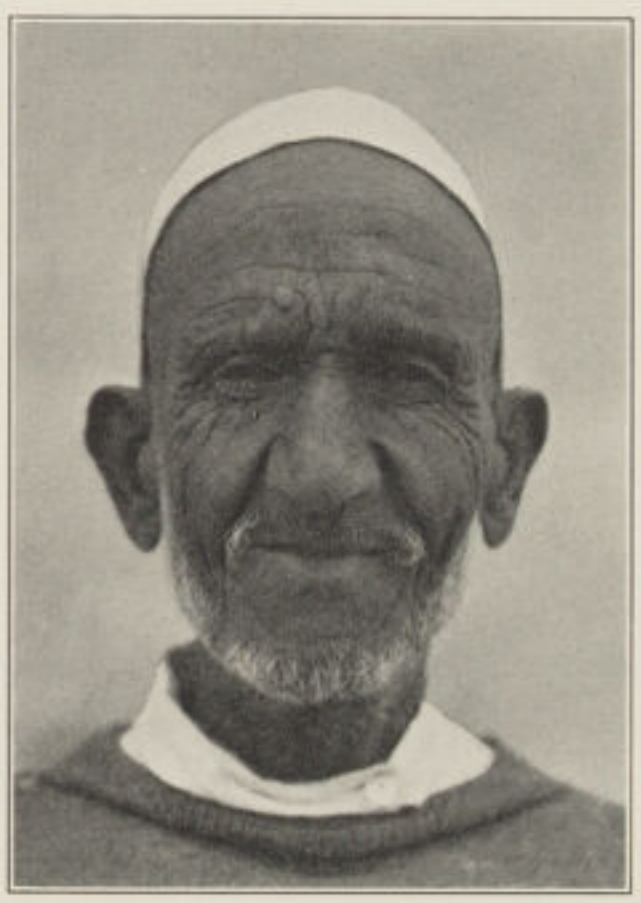

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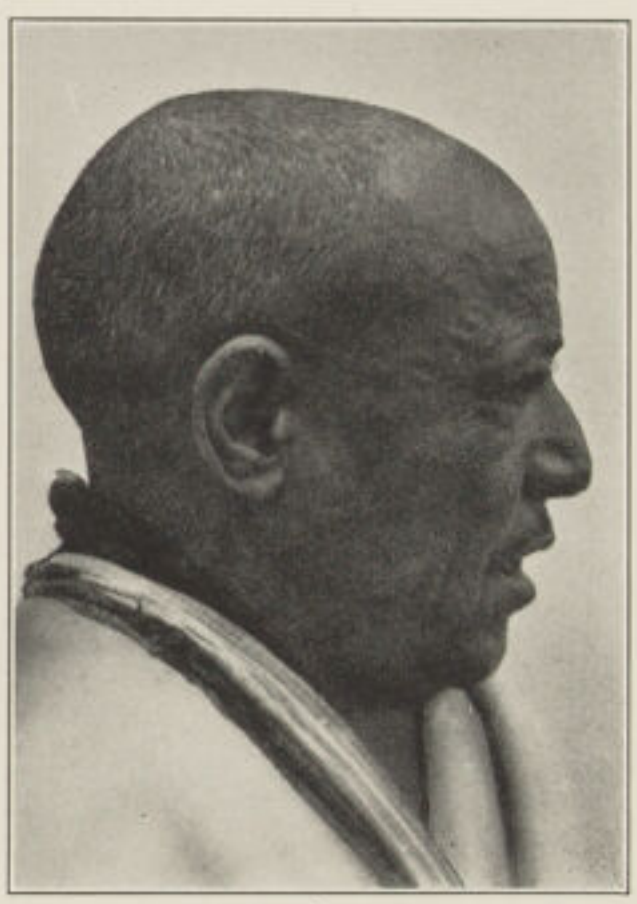
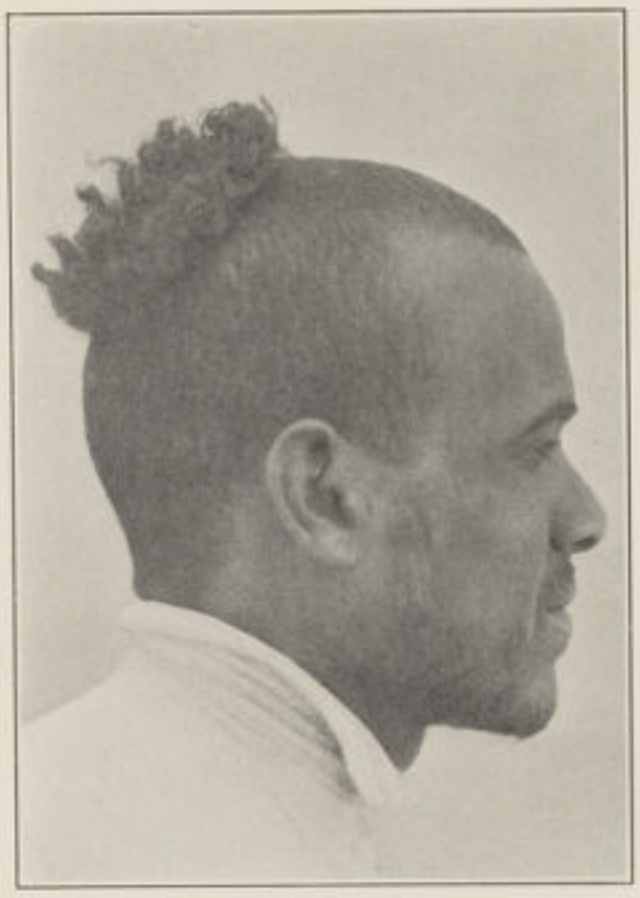


TYPES OF SIWAN ADULT MALES

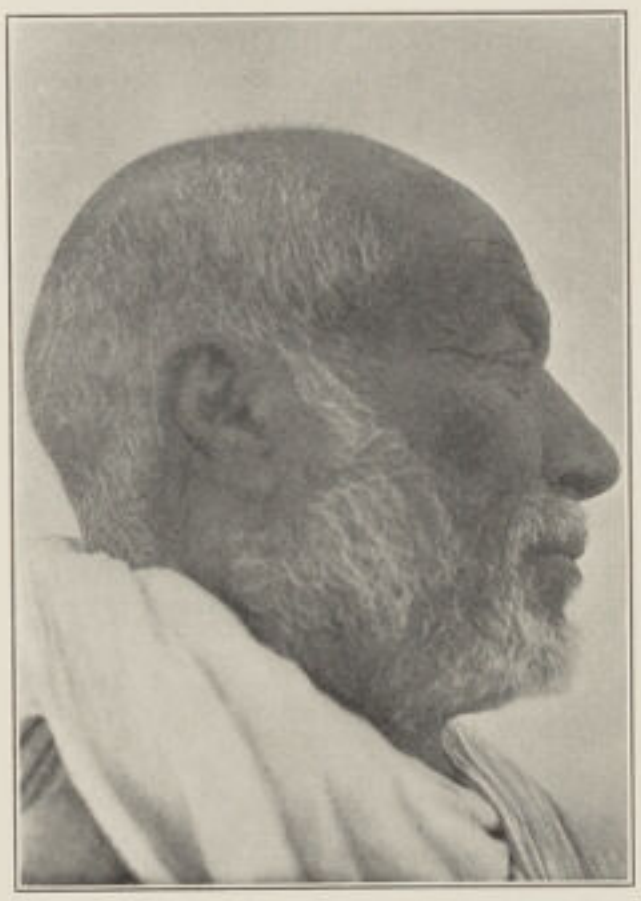


a

Cephalic index 75.27. Nasal index 84.00. Total facial index 85.07. Skin color, medium light brown. Eye color, dark brown

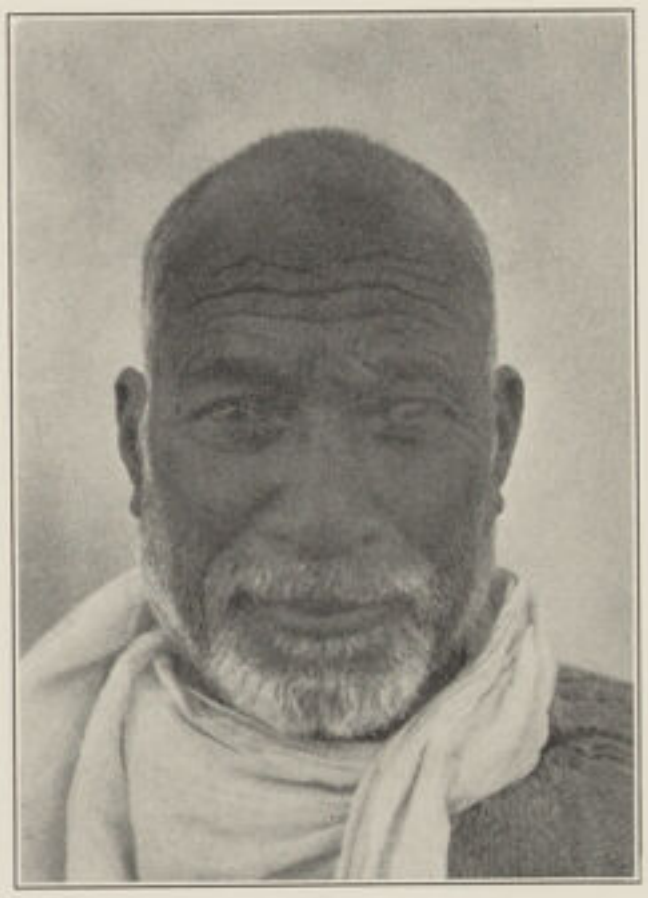
b

Age 27. Cephalic index 74.09. Nasal index 76.60. Total facial index 83.08



c

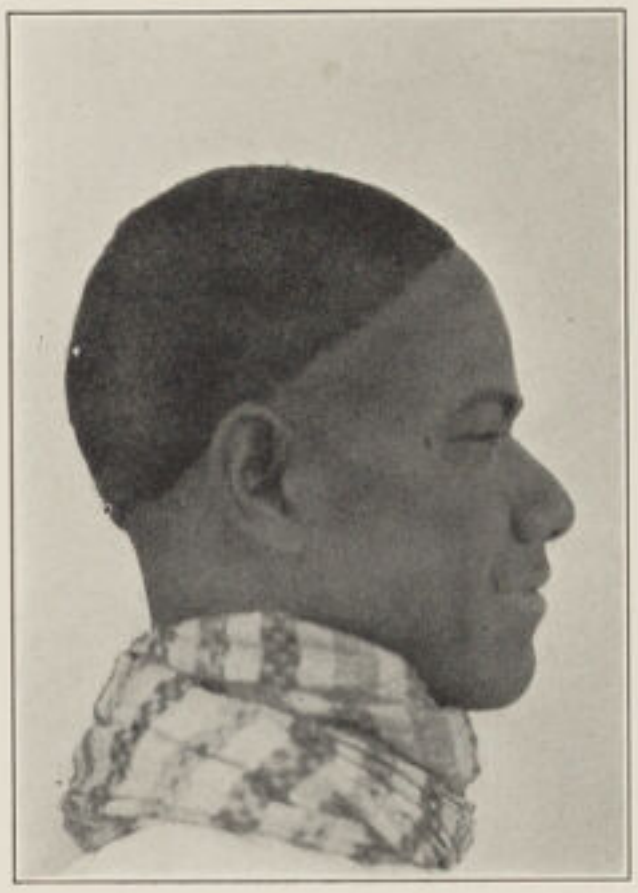
Age 80. Cephalic index 71.22. Nasal index 74.14. Total facial index 85.82. Skin color, light brown. Eye color, dark brown



d

Cephalic index 73.66. Nasal index 78.72. Total facial index 87.16

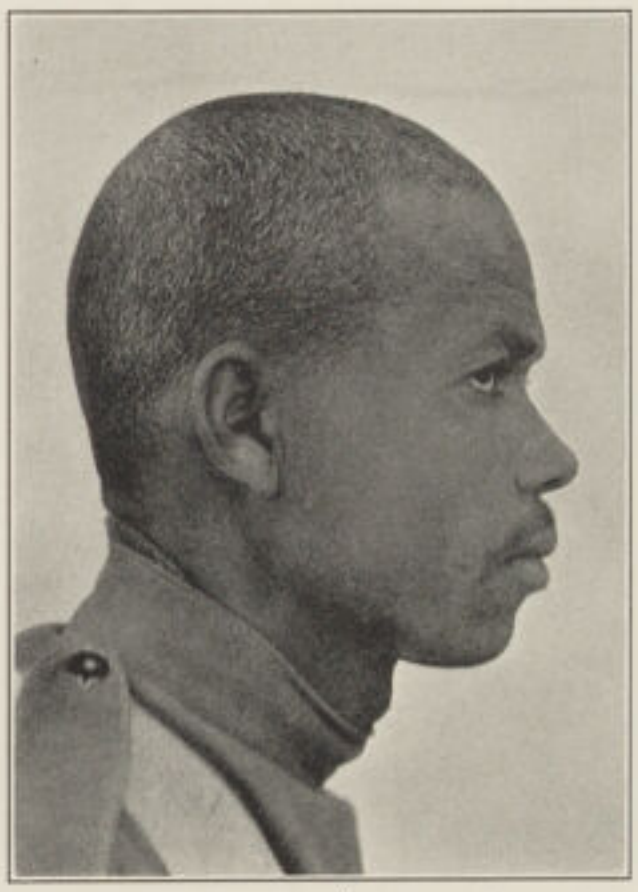
TYPES OF SIWAN ADULT MALES



a

b

c



d

e

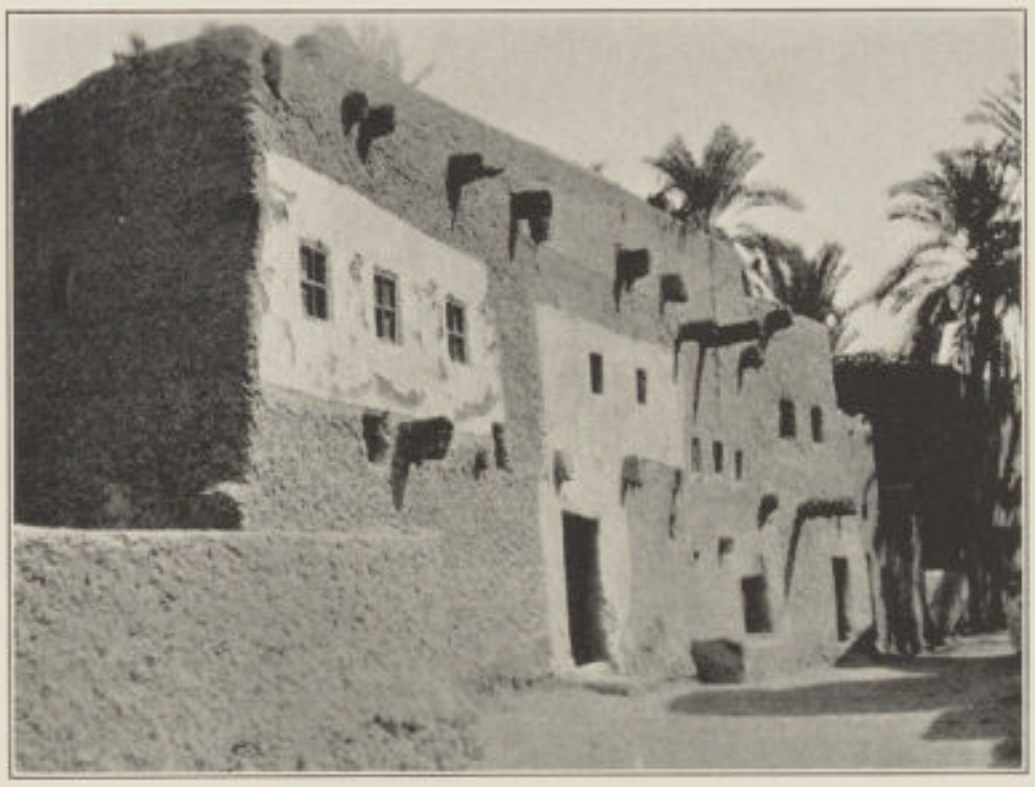
TYPES OF SIWAN ADULT MALES

a

Siwah town, seen from Jebel Mauta

b

The old Eastern quarter, from the modern market square



c

A modern Siwan house in the Sharqiin

d

View from Jebel Mauta, showing farmhouses

a

The summit of the old Eastern quarter

b

Melul, a hamlet on the road between Siwah and Meraghi

c

A club-house for the laborers of the Western faction

d

A street in the Western quarter

a

A Senussi mosque of the Westerners, with the ruins of the old Eastern section in the background

b

Ruins in the Eastern quarter, showing wall construction

c

At the foot of the Eastern hill

d

Bedawin, their freight, a Siwan Negress, and a modern Siwan house

a

The pool called Itnabsi

b

Irrigating a garden

c

Irrigating a garden

d

The date harvest

a

Packing dates for household use

b

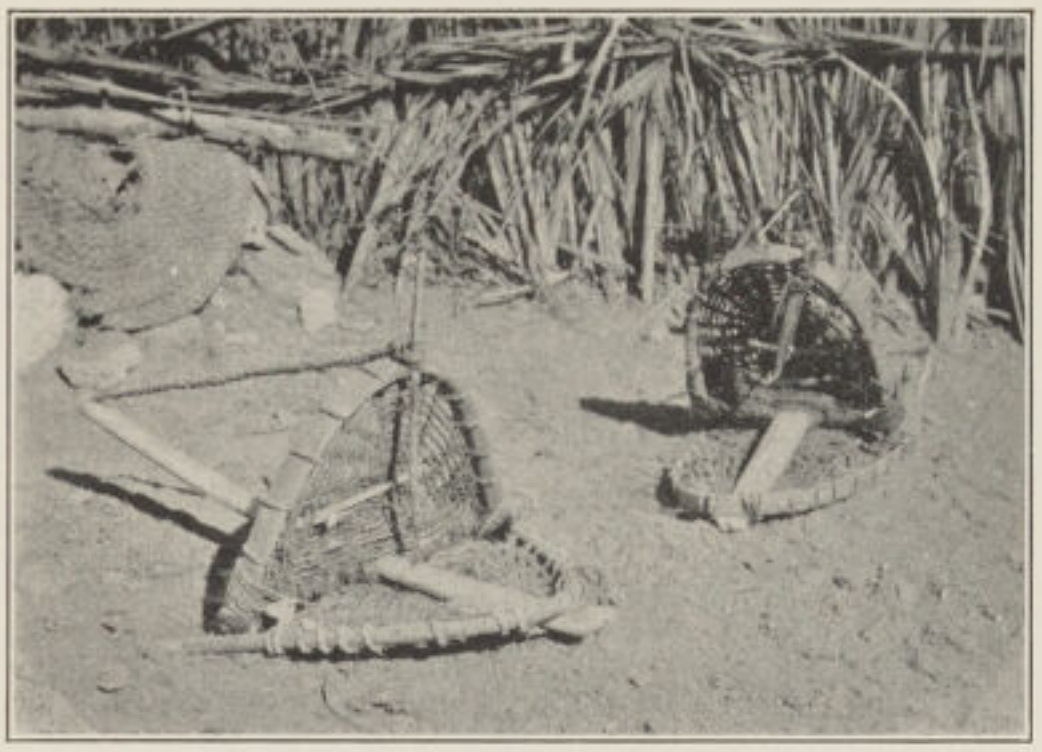
Making a *magliang*

c

Modelling the handles on the *magliang*

d

Making the jar called *buqqal*



a

Traps for small birds

b

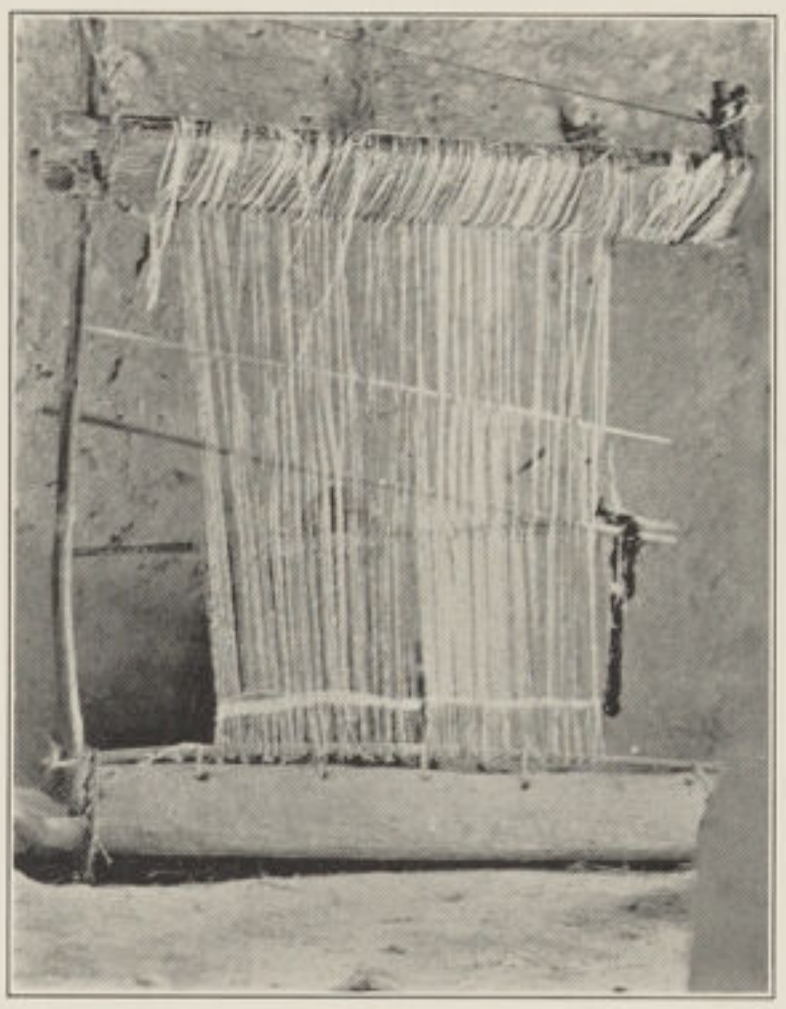
An assortment of Siwan pottery

c

An oil factory, with mill and press in action

d

The date market



a

Loom for weaving the *jubba*, as seen from the rear; the weaver is at work

b

The hoe gives a deep cultivation

c

Building a palm-leaf fence

d

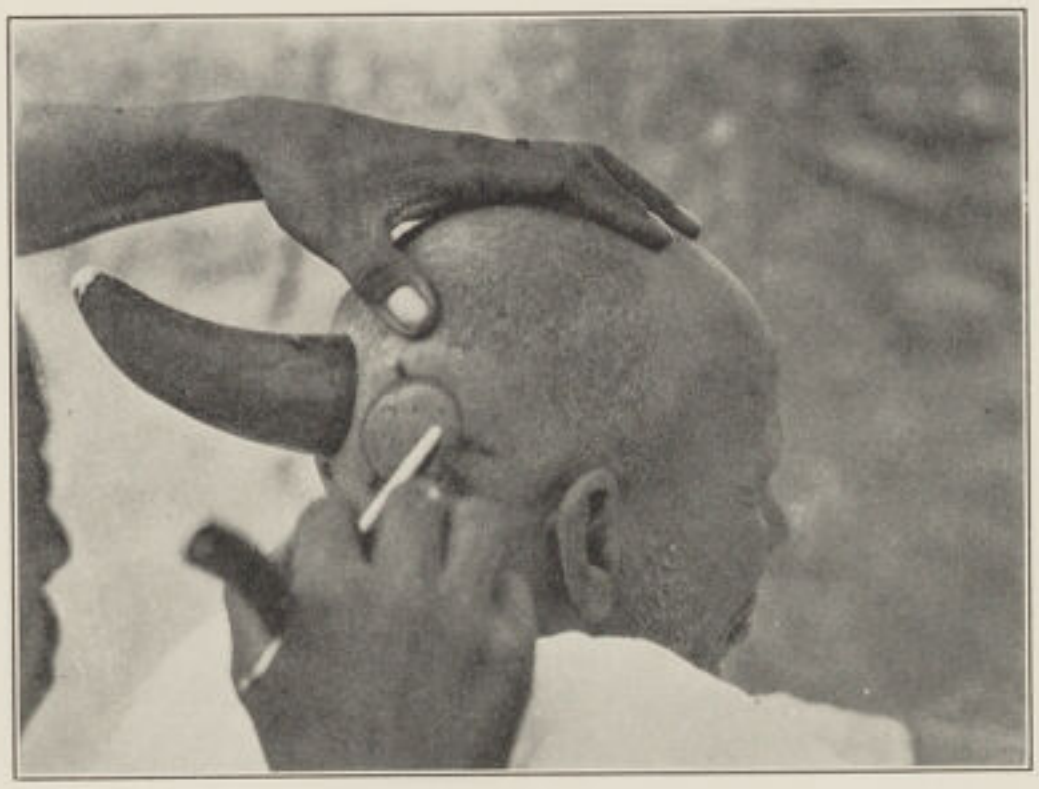
A gardener wearing a *jubba* and carrying a *menjel* (pruning-knife)

a

Senussi 'Ali 'Omar, in the shade of a weathered wall

b

Blood-letting. The practitioner sucks through the horns



c

Blood-letting. Gashes are cut with a razor in the areas raised by the suction

d

Blood-letting. The horns are again applied by suction, and left over the wounds till sufficient blood is drawn

a

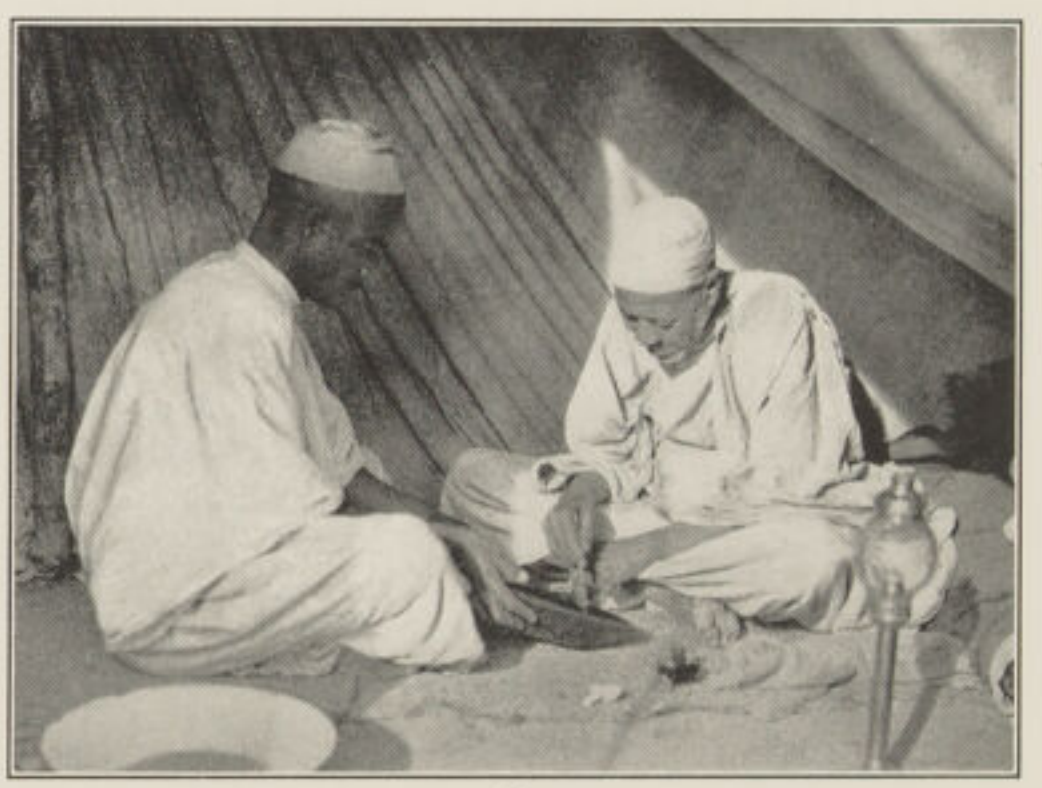
The *fiqi* writes a charm on the egg

b

He passes it over the patient's head

c

The charmed egg extracts the Evil Eye which has been causing the headache



d

The *fiqi* then breaks the egg into a wooden bowl and stirs it with the butt of his pen

a

The *adrinn* ("virginity disk")

b

A wedding. The *jumar* on its cart, in front of the bridegroom's house

c

A wedding. The *jumar* on its cart, with small girls posing

d

A wedding. The bridegroom with his friends and the *jumar*

a

The middle girl wears a "virginity disk"

b

A baby boy

c

'Amr Msellim, a learned old man

d

Old 'Amr Msellim and some of his progeny

a

Laborers dancing

b

Laborers dancing

c

Women and girls

d

A family; the wife is pouring tea